Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A transducer assembly comprising:

a transducer adapted to excite bending waves in an acoustic radiator to produce an acoustic output; and

a coupler including rheological material, the coupler mounted to the transducer and adapted to be ~~operatively connected~~ attached to the acoustic radiator to transmit bending wave energy from the transducer through the coupler to the acoustic radiator.

Claim 2 (original): The transducer assembly of claim 1, wherein the rheological material is magneto-rheological fluid and further comprising a magnet for generating a magnetic field through the coupler, and wherein the magneto-rheological fluid has a controllable viscosity that increases in response to the magnetic field, such that the coupler is substantially flexible in the absence of the magnetic field and is substantially rigid in the presence of the magnetic field.

Claim 3 (original): The transducer assembly of claim 2, wherein the magnet is an electromagnet.

Claim 4 (previously presented): A transducer assembly comprising:

a transducer adapted to excite bending waves in an acoustic radiator to produce an acoustic output;

a coupler including rheological material, the coupler mounted to the transducer and adapted to be operatively connected to the acoustic radiator to transmit bending wave energy from the transducer to the acoustic radiator, wherein the rheological material is magneto-rheological fluid that has a controllable viscosity that increases in response to the magnetic field, such that the coupler is substantially flexible in the absence of the magnetic field and is substantially rigid in the presence of the magnetic field; and

a magnet for generating a magnetic field through the coupler, wherein the magnet is a permanent magnet; and

means for moving the permanent magnet between first and second positions, the first position disposed relative to the coupler such that the magnetic field passes through the coupler with sufficient strength to make the coupler substantially rigid, and the second position disposed relative to the coupler such that the magnetic field does not pass through the coupler with sufficient strength to make the coupler substantially rigid.

Claim 5 (original): The transducer assembly of claim 4, wherein the means for moving the permanent magnet comprises a solenoid.

Claim 6 (original): The transducer assembly of claim 1, wherein the rheological material is electro-rheological fluid and further comprising electric leads adapted to generate an electric field through the coupler, and wherein the electro-rheological fluid has a controllable viscosity that increases in response to the electric field, such that the coupler is substantially flexible in the absence of the electric field and is substantially rigid in the presence of the electric field.

Claim 7 (original): The transducer assembly of claim 1, wherein the transducer includes a piezoelectric element.

Claim 8 (original): The transducer assembly of claim 1, wherein the coupler comprises foam impregnated with rheological material.

Claim 9 (original): The transducer assembly of claim 1, wherein the coupler comprises a closed vessel including a compliant body containing rheological material.

Claim 10 (previously presented): A transducer assembly comprising:

a piezoelectric transducer adapted to excite bending waves in an acoustic radiator to produce an acoustic output;

a coupler including foam impregnated with a magneto-rheological fluid, the coupler mounted to the transducer and adapted to be operatively connected to the acoustic radiator to

transmit bending wave energy from the transducer through the coupler to the acoustic radiator; and

a magnet for generating a magnetic field through the coupler,

wherein the magneto-rheological fluid has a controllable viscosity that increases in response to the magnetic field, such that the coupler is substantially flexible in the absence of the magnetic field and is substantially rigid in the presence of the magnetic field.

Claim 11 (currently amended): The transducer assembly of claim 1, further comprising ~~an~~ the acoustic radiator adapted to support bending wave vibration.

Claim 12 (previously presented): The transducer assembly of claim 11, further comprising means for generating an energy field through the coupler, and wherein the rheological material has a controllable viscosity that increases in response to the energy field, such that the coupler is substantially flexible in the absence of the energy field and is substantially rigid in the presence of the energy field.

Claim 13 (previously presented): The transducer assembly of claim 11, wherein the acoustic radiator is at least in part transparent.

Claim 14 (previously presented): The transducer assembly of claim 13, wherein the acoustic radiator includes a display.

Claim 15 (previously presented): The transducer assembly of claim 14, wherein the display is a liquid crystal display.

Claim 16 (previously presented): The transducer assembly of claim 11, further comprising a display and a window mounted over the display, wherein the window is the acoustic radiator.

Claim 17 (previously presented): The transducer assembly of claim 11, wherein the transducer includes a piezoelectric element.

Claim 18 (previously presented): The transducer assembly of claim 11, wherein the coupler comprises foam impregnated with rheological material.

Claim 19 (previously presented): A transducer assembly comprising:

an acoustic radiator adapted to support bending wave vibration;

a transducer adapted to excite bending waves in the acoustic radiator to produce an acoustic output;

a coupler; and

means for generating an energy field through the coupler,

wherein the acoustic radiator is selected from the group consisting of a display and a window mounted over a display,

wherein the transducer is a piezoelectric transducer,

wherein the coupler includes foam impregnated with rheological material and the coupler is operatively connected to the acoustic radiator and the transducer to transmit bending wave energy from the transducer to the acoustic radiator, and

wherein the rheological material has a controllable viscosity that increases in response to the energy field, such that the coupler is substantially flexible in the absence of the energy field and is substantially rigid in the presence of the energy field.

Claim 20 (currently amended): A mobile terminal comprising the transducer assembly of claim 11 and a housing,

wherein the acoustic radiator, transducer, and coupler make up a loudspeaker that is mounted to the housing,

wherein the acoustic radiator is selected from the group consisting of a display and a window mounted over a display, and

wherein the coupler is ~~operatively connected~~ attached to the acoustic radiator and the transducer to transmit bending wave energy from the transducer through the coupler to the acoustic radiator.

Claim 21 (original): The mobile terminal of claim 20, wherein the rheological material is magneto-rheological fluid and further comprising a magnet for generating a magnetic field through the coupler, and wherein the magneto-rheological fluid has a controllable viscosity that increases in response to the magnetic field, such that the coupler is substantially flexible in the absence of the magnetic field and is substantially rigid in the presence of the magnetic field.

Claim 22 (original): The mobile terminal of claim 21, wherein the magnet is an electromagnet.

Claim 23 (original): The mobile terminal of claim 20, wherein the rheological material is electro-rheological fluid and further comprising electric leads adapted to generate an electric field through the coupler, and wherein the electro-rheological fluid has a controllable viscosity that increases in response to the electric field, such that the coupler is substantially flexible in the absence of the electric field and is substantially rigid in the presence of the electric field.

Claim 24 (original): The mobile terminal of claim 20, wherein the display is a liquid crystal display.

Claim 25 (original): The mobile terminal of claim 20, wherein the transducer includes a piezoelectric element.

Claim 26 (original): The mobile terminal of claim 20, wherein the coupler comprises foam impregnated with rheological material.

Claim 27 (previously presented): A mobile terminal comprising:

a transducer adapted to excite bending waves in an acoustic radiator to produce an acoustic output;

a coupler including foam impregnated with rheological material and the coupler is operatively connected to the acoustic radiator and the transducer to transmit bending wave energy from the transducer to the acoustic radiator;

an acoustic radiator adapted to support bending wave vibration;

means for generating an energy field through the coupler; and

a housing,

wherein the acoustic radiator is selected from the group consisting of a display and a window mounted over a display,

wherein the transducer is a piezoelectric transducer,

wherein the rheological material has a controllable viscosity that increases in response to the energy field, such that the coupler is substantially flexible in the absence of the energy field and is substantially rigid in the presence of the energy field, and

wherein the acoustic radiator, transducer and coupler make up a loudspeaker that is mounted to the housing.

Claim 28 (currently amended): A method of making a transducer assembly, comprising:

providing an acoustic radiator adapted to support bending wave vibration;

providing a transducer to excite bending waves in the acoustic radiator to produce an acoustic output;

~~operatively connecting~~ attaching a coupler including rheological material to the acoustic radiator and to the transducer to transmit bending wave energy from the transducer through the coupler to the acoustic radiator; and

providing means for generating an energy field through the coupler, and wherein the rheological material has a controllable viscosity that increases in response to the energy field, such that the coupler is substantially flexible in the absence of the energy field and is substantially rigid in the presence of the energy field.

Claim 29 (currently amended): A method of producing sound with a transducer assembly, comprising:

sending an electrical audio signal to a transducer to create bending wave energy;

generating an energy field to cause a coupler including rheological material that is attached to the transducer and to an acoustic radiator to become substantially rigid; and

transmitting bending wave energy from the transducer through the coupler to ~~an~~ the acoustic radiator to excite bending waves to produce an acoustic output.

Claim 30 (original): The method of claim 29, further comprising reducing the strength of the energy field to cause the coupler to become substantially flexible.

Claim 31 (original): The method of claim 30, wherein generating an energy field comprises generating a magnetic field, reducing the strength of the energy field comprises reducing the strength of the magnetic field, and the rheological material is magneto-rheological fluid.

Claim 32 (original): The method of claim 30, wherein generating an energy field comprises generating an electric field, reducing the strength of the energy field comprises reducing the strength of the electric field, and the rheological material is electro-rheological fluid.

Claim 33 (previously presented): The method of claim 30, wherein the transducer assembly is disposed in a mobile terminal, generating an energy field occurs when the mobile terminal is on a call, and reducing the strength of the energy field occurs when the mobile terminal is not on a call.

Claims 34-36 (canceled)

Claim 37 (previously presented): A transducer assembly comprising:

a piezoelectric transducer adapted to excite bending waves in an acoustic radiator to produce an acoustic output;

a coupler including foam impregnated with a magneto-rheological fluid, the coupler mounted to the transducer and adapted to be mounted to the acoustic radiator to transmit bending wave energy from the transducer through the coupler to the acoustic radiator; and

a magnet for generating a magnetic field through the coupler,

wherein the magneto-rheological fluid has a controllable viscosity that increases in response to the magnetic field, such that the coupler is substantially flexible in the absence of the magnetic field and is substantially rigid in the presence of the magnetic field.

Claim 38 (previously presented): The transducer assembly of claim 37, wherein the acoustic radiator includes a display.

Claim 39 (currently amended): The transducer assembly of claim ~~36~~ 37, further comprising a display and a window mounted over the display, wherein the window is the acoustic radiator.

Claim 40 (previously presented): A transducer assembly comprising:

a housing;

an acoustic radiator adapted to support bending wave vibration;

a piezoelectric transducer adapted to excite bending waves in the acoustic radiator to produce an acoustic output;

a coupler including foam impregnated with a magneto-rheological fluid, the coupler mounted to the transducer and mounted to the acoustic radiator to transmit bending wave energy from the transducer through the coupler to the acoustic radiator; and

a magnet for generating a magnetic field through the coupler,

wherein the magneto-rheological fluid has a controllable viscosity that increases in response to the magnetic field, such that the coupler is substantially flexible in the absence of the magnetic field and is substantially rigid in the presence of the magnetic field,

wherein the acoustic radiator, transducer, and coupler make up a loudspeaker that is mounted to the housing, and

wherein the acoustic radiator is selected from the group consisting of a display and a window mounted over a display.